$$$

Beef quality assurance "down under," continued from page 1

require different levels of documentation, depending on market needs. The Australian Lot Feeder's Accreditation (ALFA) program, for example, is a significant element of the overall program. Grain-fed beef comprises a fraction of total production but represents the highest value outcome and appears to be a growing activity, especially for export. Because grain feeding is not the norm in Australia, the ALFA program quantifies the term "grain fed" and assures Japanese buyers of the extent of grain feeding.

Quality assurance programs

Control systems in Australia consist of a quality protocol called Cattle Care, used for management in conjunction with the Australian Quality Inspection Service (AQIS) and for control of exports to ensure food safety. In response to organochlorine residues found in meat in the 1980s, ISO (International Organization of Standardization), Codex Allimentarious, and HACCP (Hazard Analysis Critical Control Points) concepts were used to create Cattle Care, which is an ISO auditable system. Approximately 25 percent of all Australian herds are raised under this system. AusMeat, an Australian producer–packer consortium, audits the Cattle Care auditors to ensure that standards are being maintained. This system has been expanded to include other species and crop farm usage as well.

Cattle Care meets the ISO 9000 requirement that products be identified and traced to the degree necessary to maintain product integrity using existing infrastructure. For example, the NLIS (National Livestock Identification Scheme) is a trace-back system developed and operated by MLA that uses radio-frequency identification tags and a single national database to provide real-time, on-line system of individual animal identification.

Demand for this program is driven by the European Union, which would not renew Australian export access without a trace-back system. If Japan ever requires a comparable system for imported beef, Australia has the infrastructure in place.

Other systems, ranging from a tail tag system to radio frequency identification tags with serial number coding, are also in use. More sophisticated systems are in developmental stages and face many of the same problems as U.S. systems face. In addition, a National Vendor Declaration form is required with each lot of cattle sold, providing information about the seller and production methods.

One feature of the Australian beef-processing industry is that cattle are washed before entering the kill floor. This practice is not unique to Cattle Care but is consistent with QA. It is believed that washing helps keep bacteria from entering the plant, and wet cattle do not throw off dander, dust, or other particles into the plant air. This practice could be a significant component of the extended shelf life (120 days or more) claimed by Australian processors.

Meat Standards Australia

The MSA (Meat Standards Australia) grading system is a voluntary QA program that uses a series of objective pre-harvest and post-harvest measures or interventions (e.g., cooking, aging) to predict eating satisfaction (tenderness, juiciness, flavor). Meat is graded on a primal or subprimal basis, so it is possible that cuts from the same carcass may have different grades and that a cut could improve in grade based on intervention. Packers, retailers, and restaurants that use the MSA system and make the "guaranteed tender" promise are audited, and blood samples for DNA analysis are taken from each carcass (while it is still identified for the seller) for trace-back on an as-needed basis. The MSA grading system is more complex than the USDA system, provides more information to the buyer and seller, and places greater emphasis on eating satisfaction.

Purpose of quality assurance

The purpose of these QA programs is to enhance Australian beef in terms of integrity and value to the end user. One commonality is that the programs are built with industry and government cooperation but are voluntarily adopted by individual producers or processors. Perhaps most importantly, this investment in

continued on page 3

Beef quality assurance "down under," continued from page 2

expensive research and development of infrastructure allows smaller supply chains to adopt the systems and differentiate their products in the marketplace. Also, because the programs are voluntary rather than mandatory, supply chains can separate from the commodity market using tangible information and technology to add value to their products.

New Zealand experience

Unlike the Australian system, QA programs in New Zealand are strictly voluntary and are led primarily by processors based on private entity participation. New Zealand virtually eliminated government subsidies to agriculture in the mid-1980s and has since taken a more individual approach to production and marketing. Firms are encouraged to develop and implement QA programs with their producers and suppliers to meet market demand. Because the QA programs are unique to the processor and some switching costs are involved, New Zealand producers are loyal to their chosen processor.

Government inspectors inspect plants to assure safety and wholesomeness but do not appear to be heavily involved in program development or research. New Zealand plants are inspected by and certified to standards set by each importing country and are often inspected by individual companies to which they sell. If a company has customers from both the United States and Europe, that company also has the required programs to ensure access to both markets.

Quality assurance programs

The New Zealand meat industry has many small beef or beef/lamb processing plants, but four firms (two of which are cooperatives) are dominant. An example of a private QA program is that of Richmond, Ltd., a stockholder-owned company that is one of the four large meat processors and the largest beef processor in New Zealand. The Richmond Farm Assurance program allows participating producers to receive a small premium for selling their product to Richmond, Ltd. Independent auditors conduct on-farm audits, with the cost of audits being paid by Richmond, Ltd. Both plant and on-farm audits are also conducted by Richmond's large customers, including Marx and Spencer from the United Kingdom and McDonalds and Burger King. Richmond, Ltd. is also developing the "Green Tick" program, which will include environmental standards audited to ISO 14000 standards and will be incorporated into the existing QA program.

The New Zealand industry is creating a system that will contain many of the same elements as Australia's Cattle Care system, but with participation on a processor-by-processor basis. It appears the system is in an early stage. Also, participants in the New Zealand meat industry have just voted to require identification for traceability purposes in beef and venison. A pending study of how to achieve that goal economically, and a requirement to similarly identify sheep because of their much greater numbers, has been delayed.

Because New Zealand firms must shoulder the entire burden of investment in development costs, the meat industry may be slower to develop such programs. This factor may explain some of the differences noted between the two countries' QA systems. At the same time, New Zealand processors look to their major export customers for minimum requirements for market access and company-specific QA innovations allow their supply chains to distance themselves from the commodity market.

Quality assurace to compete

Australia and New Zealand each have multiple export customers, often with unique demands. Documenting and proving production processes, expected eating experiences, and the unique features of beef products to diverse consumers is necessary for these two countries to compete in multiple markets. To a degree, the value of using a quality management system to gain competitive advantage in a specific industry depends on the amount of differentiation that is possible among players in terms of perceived product quality and peripheral issues such as product integrity. In mature industries such as processed meat, even a small differentiation

continued on page 4

Beef quality assurance "down under," continued from page 3

can be enough to provide a competing organization with a decided advantage.

US experience

Beef production and marketing are more standardized in the United States than in either Australia or New Zealand. U.S. exports account for less than 10 percent of production, and U.S. consumers by and large still trust the USDA to ensure beef safety and to provide quality indicators using quality grades. There is perhaps less incentive to differentiate one's product based on safety (if it is all safe) or quality (if it is all graded the same). Generally, differentiation is achieved by sorting commodity beef and trying to receive a higher overall value rather than producing a non-commodity product. Most U.S. customers are satisfied with the existing commodity system, and risk-averse producers are reluctant to adopt and/or document production practices that increase cost without some assurance of higher revenues in return. Processors continue to rely on post-harvest treatment of commodity beef to add value by sorting, packaging, preparing, or advertising for changing consumer needs. They only need a safe raw product.

Supply chains

Slowly and from a small base, some individual supply chains in the United States are breaking away from the commodity model. Perhaps the closest system the United States has to Australian system is the USDA Process-Verified Beef program, which is not widely used but could be adopted by several supply chains. New differentiated supply chains are focusing on production practices (e.g., natural) or genetics and often require additional documentation and quality assurance programs. Likewise, export markets may require additional information to access markets. These changes may provide U.S. producers with economic incentives to follow the lead of Australian and New Zealand systems.

Access the full version of this study at the MATRIC Internet site (http://www.matric.iastate.edu) or order a copy through CARD at 515-294-1183.

Are exports a dependable base for farm prosperity?

by Otto Doering, professor; and Michael Boehlje, professor, Purdue University; and Neil Meyer, University of Idaho.

What sounds sensible (export more) when heard separately in each country becomes nonsense when aggregated around the world. No one can have more net exports unless someone else has more net imports.

—Thurow, Lester. 1999. *Building Wealth: The New Rules for Individuals, Companies and Nations in a Knowledge-Based Economy*. Harper Collins, New York, p. 71.

Background

We have a strong relationship between exports and farm prosperity in the United States. From the early 1900s to the early 1920s, increasing prices and export volumes made farming unusually prosperous and boosted land values. During World War II and its aftermath, another boom in prices and exports was experienced. A third boom occurred in the 1970s, which peaked in 1981. All the prosperous periods were the result of political decisions or crop failures.

If we calculated the full cost of exports, including government support to farmers, transportation subsidies, damage to the environment, etc., sometimes we ended up exporting commodities below our full internal costs of production.

High commodity prices encourage all farmers to produce more. The high prices in 1995-97 certainly helped bring about our current oversupply of commodities. We know that increasing U.S. commodity prices through high loan rates in the 1970s increased the prices for farmers beyond our borders. We changed our policies in 1985 to avoid this by moving to lower loan rates and depending more on deficiency payments

continued on page 5

Are exports a dependable base for farm prosperity?, continued from page 4

for our farmers, basing this on a target price set well above the loan rate.

What we see historically is long periods of moderate or low prices punctuated with shortages and high prices and export demand. Despite policies to boost grain exports, volume has been mostly flat since the 1980s. High prices from export booms have been rare (only during the teens, in the 1940s, and during the 1970s).

Why do we see what we see today?

- Agricultural commodity markets are mature. In a mature industry, technical changes tend to increase supply faster than demand. Agriculture commodities have an inelastic demand, therefore, supply increases cause larger percentage price decreases. To increase market share, one has to sell at lower prices. High prices encourage competitors to increase production.

  In the case of grains, a long period of low prices might discourage high cost producers and allow the U.S. to increase export share. The cost for this would be some producers going out of business or government transfers to farmers allowing them to maintain their incomes. Today's farm program is effectively doing this.

- The export boom of the 1970s had some important agricultural drivers:
  - Bad weather around the world and
  - the corn blight in the U.S.

  The critical non-agricultural drivers were:
  - The decision of the Soviet Union and other Communist states to import grains,
  - freeing of the dollar from fixed exchange rates made our exports less expensive in terms of other currencies, and
  - recycling of petro-dollars, which resulted in international banks making vast loans to countries (in South America and Eastern Europe) that they used to buy grains.

- Food is a strategic good. Politically, many countries have social policies to slow out-migration from agriculture and to encourage the maintenance of the present investment stock in agriculture.

- Free markets in commodities and inputs may not make for high prices and volumes. Prices and volumes would likely be different under free trade from where they would be otherwise, but farmers might not be more prosperous. Land values would be driven lower in those countries that previously subsidized their agriculture and their exports. This would hurt current owners. Free trade would not necessarily end the boom and bust cycles brought about when high international prices encourage everyone to invest, overshoot, and produce more. We continue to have the capacity in the U.S. to produce more than we need. As long as other world producers are in the same over-capacity position, or want to be self-sufficient, a U.S. free trade position will not necessarily bring prosperity to U.S. farmers.

Future trends that are important to us

- The mobility of technology and the increasing speed of its development change the outlook for our exports. Lowered variable costs will become the driver of production through enhanced technology. International markets for technology will be opened, which

continued on page 6

Table 1. Scorecard of factors influencing potential export growth.

Positive	Negative
Bad weather, crop failures overseas	Good weather, bumper crops overseas
Increasing consumer incomes overseas	Other countries' export subsidies
Trade agreements	Motivation for self-sufficiency
Export subsidies	Strong dollar
Weak dollar	Technology diffusion and mobility
Comparative advantage	Expanded world capacity
Population growth overseas	Increased global productivity
Resource degradation overseas	Increased crop weather tolerance
	Mobility of investment capital

Are exports a dependable base for farm prosperity?, continued from page 5

profoundly affects the location of grain production.

- With a slow down in population and income growth combined with productivity and acreage increases, demand for grains is unlikely to catch up with the current stockpiles unless there is abnormal weather.

- Capital for investment in agricultural production and processing is very mobile. European and U.S. livestock, poultry, and potato processing companies are investing in production capacity in Latin America, Canada, and Eastern Europe. The key here is raw materials will be obtained near processing facilities.

Where does this leave us?

In terms of our current situation of world oversupply, demand is not likely to grow quickly enough to take care of the problem.

There has to be:

- new forms of demand growth,
- weather or policy-driven supply control, or
- acceptance of a prolonged period of low prices.

High prices stimulate oversupply because once demand shortages are met, the investment and production continue as long as variable costs are covered. If price is to be the mechanism to reduce supply, it then takes a long period of low prices to reduce world supply. Meanwhile, income support policies keep land in production.

Supply adjustment can come from reduced acreage or from reduced yields. Reduced yields will occur with reduced inputs (land, fertilizer, technology) or bad weather. Farmers don't take land out of production as long as they can cover variable costs.

A variety of factors involved in determining export growth are listed in Table 1. An assessment of these factors does not indicate export growth as a foregone conclusion even with more open trading rules.

The strongest potential growth avenue for grains may be processing, where most of the demand growth has occurred over the past 20 years. This goes beyond taxpayer subsidized ethanol production and price protected fructose production to such things as biochemicals and plastics. However, this usually requires price stability at moderate levels for the raw materials.

Summary

The long-run experience in creating agricultural prosperity through export growth is not very good. Technology moves across borders easily and rapidly. Price spikes encourage excess investment, which results in excess production. It can take many years for invested production capital to depreciate and reduce overall supply.

Prosperity from agriculture and food product production will come to those adding value to basic commodities supplying consumer desires and finding new uses for commodities. The largest returns will likely be to those meeting consumer demands by adding value and capturing market niches. Production agriculture needs to look at things such as how healthy foods reduce heart disease, cancer, and other diseases. Capturing some of the medical and health dollars could save the nation money while improving the financial health of agricultural producers. **Producers must find ways to capture added value rather than produce more commodities.**